Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims:

1. – 19. (canceled)

20. (previously presented) An optical cross connect apparatus, comprising:

a first planar layer comprising *m* optical paths formed on oppositely disposed surfaces of the first planar layer;

a second planar layer comprising *n* optical paths formed on oppositely disposed surfaces of the second planar layer; and

an optical switch array comprising a plurality of optical switches, wherein the optical switches permit optically coupling any optical path of the first planar layer with any optical path of the second planar layer, and control signals communicate to the optical switches to change the optical switches between a transparent state that permits signal transmission and an opaque state that prevents signal transmission.

21. (previously presented) The apparatus of claim 20 wherein the first and second planar layers are arranged so that each of the *m* optical paths crosses each of the *n* optical paths to form a plurality ($m \bullet n$) of crossing points.

22. (original) The apparatus of claim 21 wherein the optical switch array is disposed between the first and second planar layers so that each optical switch is located at an associated crossing point between the first and second planar layers.

23. (original) The apparatus of claim 20 wherein the optical switch array is a liquid crystal optical switch array.

24. (original) The apparatus of claim 20 wherein at least one selected optical path is formed within a selected layer of the first and second layers.

25. (original) The apparatus of claim 24 wherein the selected layer further comprises a channel, wherein the selected optical path is disposed within the channel.

26. (original) The apparatus of claim 25 further comprising a first reflective cladding portion deposited within the channel.

27. (original) The apparatus of claim 25 further comprising an optical core medium disposed within the channel.

28. (original) The apparatus of claim 27 further comprising a reflective cladding portion disposed over the optical core medium.

29. (original) The apparatus of claim 26 further comprising a second reflective cladding portion disposed over the channel.

30. (original) The apparatus of claim 25 wherein a cross-section perpendicular to the route of the selected optical path is substantially non-circular.

31. (previously presented) An optical cross connect apparatus, comprising:

a first planar layer comprising plural optical paths formed on two sides of the first planar layer;

a second planar layer comprising plural optical paths formed on two sides of the second planar layer; and

an optical switch array comprising optical switches that optically couple the plural optical paths of the first planar layer with the plural optical paths of the second planar layer, wherein control signals communicate to the optical switches to change the optical switches between a transparent state that permits signal transmission and an opaque state that prevents signal transmission.

32. (previously presented) The optical cross connect apparatus of claim 31, wherein at least one of the plural optical paths is disposed within the first planar layer between the two sides of the first planar layer.

33. (previously presented) The optical cross connect apparatus of claim 31, wherein at least one of the optical switches connects optical paths formed on the two sides of the first planar layer.